

AppIn No. 10/540,796  
S. Guinehut  
Office Action dated July 10, 2006

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### REMARKS/ARGUMENTS

The Examiner is thanked for the Official Action dated July 10, 2006. This amendment is intended to be fully responsive thereto.

Claims 1-18 are currently pending in the application. Claim 9 has the range of the density of the metal foam between 0.1 and 0.3g/cm<sup>3</sup>. New claims 10 and 11 define a thickness range, and, respectively, shape for the cross section hollow piece. Support can be found, for example, on page 7 as well as elsewhere in the present specification.

Claims 12-18 introduce limitations on thickness e, density and/or length of various embodiments. Support can be found in the specification on pages 2 and 3 for the square and rectangular cross section, and page 4, example 1, for the specific case. Page 5 supports the energy absorption mass ratio of between 10-20 of claims 14 and 18 (in paragraph 4).

No new matter has been added.

#### Drawings

The drawings were objected to under 37 CFR 1.83 (a) as not showing every feature of the invention specified in the claims. The circular cross section of claim 3 has been shown and labeled on a New Sheet as Fig. 9, thus respectfully overcoming this objection. No new matter has been added.

#### The Specification

To ease examination by the Examiner, the Specification as been amended to put guideline headings in the text. No new matter has been added.

#### Claims Objections

Claims 6-8, were objected to under 37 CFR 1.75 (c) as being improper for depending from other multiple claims.

Claims 6-8 have been amended to each depend on only one independent claim. New claim 9 depends on claim 3 only.

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Claim Rejections 35 USC 112

Claims 1-5 were rejected under 35 USC 112, second paragraph for being indefinite for "failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention."

Specifically, the Examiner declares the term "longeron" rejected in claim 1 due to a dictionary definition, and in claim 2, to a range value described as being indefinite due to "broad language followed by "such as" and then narrow language.

Applicant respectfully submits that claims 1 and 2, as currently amended overcome these rejections by: 1. clearly showing the term and its use in the automotive context; and, 2. removing the "particularly" language of claim 2.

Dictionary.com translator provides the following definition of longeron from French to English: In French longeron; In English member. The dictionary.com page is provided to the Examiner as an attachment to this response.

In addition, in the context of the present invention, it is clear that a longitudinal longeron is a longitudinal member of the motor vehicle.

Coming from the original old French language, the term longeron clearly comes from the old French language and from the Latin longus (to run along side of). In fact, the Examiner, in his own review, acknowledges his understanding of the term in this case.

In publication of the PCT of the present case, the equivalent term to a "longeron longitudinal (6)" is also disclosed as a "longitudinal member (6)" in the English translation.

On page 1, lines 18-20, modular front ends of a vehicle are "mounted by connection to lateral structural elements of the vehicle, such as the longerons, ..." (See also rest of the paragraph 3).

Finally, in the automotive art, longeron is also used. For example, in a quick search today, Applicant has found that in US Patent 6,669,433, the longitudinal member 12 of figure 1, 2 and 3, are described as longerons for a semi trailer tractor vehicle. (See specification and claims of US 6,669,433.)

Other examples include US 6,619, 403, relating to a motor vehicle front end, wherein the lower part of the support piece is arranged such a way that it can be screwed to a

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longeron (11) of the vehicle. The cross member also bears against the longerons 11. (See figures and Specification of US Patent 6,619,403).

Applicant, therefore, must insist, that both in context and prior use, in both patents and in the translator provided, that the meaning of longeron is clear and would be so of one of ordinary skill in the art.

Claim Rejections 35 USC 103(a)

Examiner has rejected original claims 1-3 and 5 as unpatentable over US patent application 3, 888,502 (Felzer) in view of US patent application publication 2002/0066254 (Ebbinhaus).

The Examiner describes Felzer as disclosing "an energy-absorbing case for a motor vehicle bumper beam comprising a casing consisting of a hollow section piece which has a first end able to be attached to the bumper beam at second end able to be fixed to the motor vehicle", that the casing is "filled with a foam material", and Felzer teaches "a rectangular, particularly square...as well as circular cross section." The hollow piece is described by Examiner as "must consist of a material which allows the hollow member to fold satisfactorily", and that "any material fulfilling requirement may be used and is therefore contemplated." Preferably, sheet steel.

*Examiner concedes that Felzer lacks a teaching of the casing filled with a metal foam with energy-absorbing properties and the density range of 0.1-0.4g/cm<sup>3</sup>.*

Examiner further declares that Ebbinhaus teaches a "reinforced part which may differ in shape, with a hollow outer formed part (12) and a metal foam filling (14) filling the inner space...to improve the mechanical deformation, with a preferred density of 0.3-5g/cm<sup>3</sup>.

Examiner, therefore, concludes it would be obvious to provide metal foam as taught by Ebbinhaus with the hollow section piece of Felzer.

Applicant must respectfully disagree with both conclusions, and the combination. While Examiner has read Felzer as disclosing art combinable to reach the present invention, the crux of Felzer does not relate, describe or discuss the need or desire to provide for the case attached to the bumper beam to longitudinal longeron, as in the present claims. The need for specific foams, of specific densities, for a casing located in this position is therefore not foreseen, discussed or described in Felzer alone or in combination with any other art.

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Applicant claims a case with a metal foam, having energy-absorbing properties of a specific density, that density to allow for correct energy absorption in its use between a longitudinal longeron and a bumper beam. This is not taught, suggested or described in Felzer, either alone, or in combination with any other prior art.

Ebbinhaus, on the other hand, relates to the problem and solution of use of reinforced formed parts. In fact, Ebbinhaus takes great pain to distinguish itself from the prior art on page 1, paragraphs 8-13. For example, paragraphs 8 and 9 end with the statement that those foams are "not a reinforcement for the external parts or any supporting part" or "in no way with a supporting part." The goal of Ebbinhaus is described in paragraph 12 as "ensuring a still better reinforcement of the outer part." More telling is perhaps the fact that in Ebbinhaus, the density of his metal foams, according to paragraph 14, is preferably more than  $0.3 \text{ g/cm}^3$ , typically of  $0.6 \text{ g/cm}^3$ .

In fact, new claim 9 specifically describes such a case with a foam density between  $0.1$  and  $0.3 \text{ g/cm}^3$ , with advantageous results specifically lower than  $0.3 \text{ g/cm}^3$ . It is therefore clear that the present invention differs from Ebbinhaus, therefore, can even be seen as teaching away from the foam density of the present invention.

Claim 4 was further rejected under 35USC 103(a) as unpatentable over Felzer, *as modified* in view of Ebbinhaus (emphasis added).

Felzer et al, *as modified*, lack the hollow section piece being aluminum. Ebbinhaus is said to "teach the desirability of aluminum in hollow section pieces including weight savings and good corrosion resistance", and, therefore, has concluded that it would be obvious to provide the hollow section piece of Felzer et al out of aluminum to provide "better weight savings and corrosion resistance." Ebbinhaus does not describe the claims of the present invention of aluminum hollow section of the thickness and properties of the dependent claims, and, in addition, as described above, Ebbinhaus, for example, teaches away from foam densities as described in the ranges of claim 9 and its dependent claims.

#### Summary

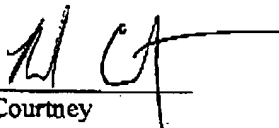
Based on the foregoing, it is respectfully submitted that claims 1-18, in their current forms, define the invention over the prior art of record and are in condition for allowance, and notice to that effect is earnestly solicited. Should the Examiner believe further discussion regarding the above claim language would expedite prosecution, please be invited to contact the undersigned at the number listed below.

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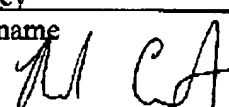
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I hereby certify that this correspondence is being transmitted by  
facsimile to the Commissioner for Patents,  
Alexandria VA, 22313-1450 on October 10, 2006.

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